

CLAIMS

We claim:

1. A clarifier for separating solids from a solution, the clarifier comprising:
a tank that includes a bottom and a wall extending upwardly from the

5 bottom;

a influent pier projecting upwardly from the bottom of the tank along an axis, the influent pier including ports that direct flow of the solution outwardly from the influent pier; and

- 10 a FEDWA separating the flow of the solution discharged by the ports and flowing into the tank, the FEDWA separating the flow of the solution into a first flow portion that is directed in a first direction that is generally tangential with respect to the axis of the influent pier, a second flow portion that is directed in a second direction that is opposite to the first direction of the first flow portion, and a third flow portion that is directed in a third direction toward the axis.

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2. The clarifier of claim 1, wherein the third flow portion achieves opposing flow resulting in impingement of the third flow portion.

- 20 3. The clarifier of claim 1, wherein the FEDWA includes a cage supported by the influent pier adjacent to the inlet ports, the cage including a plate that defines a horizontal plate that is positioned below the inlet ports and that initially directs the flow of solution outwardly from the influent pier toward the wall of the tank.

- 25 4. The clarifier of claim 3, wherein the FEDWA includes outer baffles mounted to the cage and positioned outside of the cage, and wherein the outer baffles include vertical portions and horizontal portions extending from the vertical portions, the horizontal portions being positioned lower than the plate of the cage.

- 30 5. The clarifier of claim 4, wherein the first flow portion is directed by the vertical portion of the outer baffle in the first direction, the second flow portion is directed by the vertical portion of the outer baffle in the second direction, and the third flow portion is directed by the horizontal portion of the outer baffle in the third direction.

6. The clarifier of claim 4, wherein the cage includes corners and corner baffles that are mounted to the corners of the cage.

7. The clarifier of claim 6, wherein the FEDWA includes intermediate baffles
5 mounted to the outside of the cage and positioned between the cage and the outer baffles, the intermediate baffles also being positioned between adjacent corners of the cage.

8. The clarifier of claim 7, wherein the intermediate baffles include vertical
portions and horizontal portions extending from the vertical portions, the horizontal
10 portions being coplanar with the plate of the cage.

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9. A FEDWA for use with a clarifier, the FEDWA comprising:
a cage including a plate; and

outer baffles mounted to the cage and positioned outside of the cage,
wherein the outer baffles include vertical portions and horizontal portions that extend from
5 the vertical portions, the horizontal portions being positioned lower than the plate of the
cage.

10. The FEDWA of claim 9, wherein the cage is rectangular and includes
corners.

10 11. The FEDWA of claim 10, wherein the cage includes corner baffles
mounted to the corners of the cage.

15 12. The FEDWA of claim 11, further comprising intermediate baffles mounted
to the cage and positioned between the cage and the outer baffles, the intermediate baffles
also being positioned between adjacent corners of the cage.

20 13. The FEDWA of claim 12, wherein the intermediate baffles include vertical
portions and horizontal portions extending from the vertical portions, the horizontal
portions being coplanar with the plate of the cage.

14. A clarifier for separating solids from a solution, the clarifier comprising:
a tank that includes a bottom and a wall extending upwardly from the
bottom;

an influent pier projecting upwardly from the bottom of the tank along an
axis, the influent pier including ports that direct flow of the solution outwardly from the
influent pier; and

a FEDWA separating the flow of the solution discharged by the ports and
flowing into the tank, wherein the clarifier does not include any well between the FEDWA
and the wall of the tank.

15. The clarifier of claim 14, wherein the FEDWA separates the flow of the
solution into a first flow portion that is directed in a first direction that is generally
tangential with respect to the axis of the influent pier, a second flow portion that is directed
in a second direction that is opposite to the first direction of the first flow portion, and a
third flow portion that is directed in a third direction toward the axis.

16. The clarifier of claim 15, wherein the third flow portion achieves opposing
flow resulting in impingement of the third flow portion.

17. The clarifier of claim 15, wherein the FEDWA includes a cage supported
by the influent pier adjacent to the inlet ports, the cage including a plate that defines a
horizontal plate that is positioned below the inlet ports and that initially directs the flow of
solution outwardly from the influent pier toward the wall of the tank.

18. The clarifier of claim 17, wherein the FEDWA includes outer baffles
mounted to the cage and positioned outside of the cage, and wherein the outer baffles
include vertical portions and horizontal portions extending from the vertical portions, the
horizontal portions being positioned lower than the plate of the cage.

19. The clarifier of claim 18, wherein the first flow portion is directed by the
vertical portion of the outer baffle in the first direction, the second flow portion is directed
by the vertical portion of the outer baffle in the second direction, and the third flow portion
is directed by the horizontal portion of the outer baffle in the third direction.

20. The clarifier of claim 18, wherein the cage includes corners and corner baffles that are mounted to the corners of the cage.

5 21. The clarifier of claim 20, wherein the FEDWA includes intermediate baffles mounted to the outside of the cage and positioned between the cage and the outer baffles, the intermediate baffles also being positioned between adjacent corners of the cage.

10 22. The clarifier of claim 21, wherein the intermediate baffles include vertical portions and horizontal portions extending from the vertical portions, the horizontal portions being coplanar with the plate of the cage.

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